Short Report

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COVID infection displaces serious cardiovascular disease from the resuscitation room

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Abstract

The SARS-COV2 Pandemic has required the emergency departments to focus their attention and care to COVID-19-diagnosed patients over patients with other pathologies. Descriptive study of patients attended in the resuscitation room between 1st of March and 31st May 2019 and compared to the same period in 2020. We include all the patients attended were included in the study and their clinical variables evaluated and their diagnosis at discharge. Six hundred and fifty-nine patients were attended in 2019 and 384 in 2020. There were no differences between age and gender. In 2019, 83.2% of the cases attended had a cardiac pathology, followed by neurological pathology and traffic accidents. This data is also significant since in the same period of 2020 cardiac pathology fell to 8.3%. The COVID pandemic has reduced patients attended at resuscitation room, and especially cardiovascular ones. These are preliminary results and more studies should be done to confirm or to study this trend.

Keywords

COVID, emergencies, epidemiology

Background

In the last months of the SARS-CoV2 Pandemic,[1] the emergencies attended in the Hospital Emergency Services of our country, mainly focused on pathologies associated with the Coronavirus infection. In fact, during the first weeks of the pandemic, cases of non-COVID pathology were very few and generated concern among professionals from other specialties. Faced with this perception, we wanted to assess

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whether this decrease had actually existed. And we focus on the care provided in our Resuscitation room, as a general emergency department. Despite the presence of this respiratory infection, the rest of cardiac,[2,3] neurological[4] or trauma pathologies,[5] which require immediate intervention and could be life-threatening for the patient, should not be affected. Moreover, mental health problems during COVID have been described.[6] Due to lack of literature,[7] which evaluates the characteristics of patients attending the resuscitation room during COVID epidemic, we decided to develop this preliminary study to evaluate it.

Methods

Retrospective cross-sectional study with data from the resuscitation room between two periods. From 1st March to 31st May 2019 and the same period in 2020. We described different clinical variables, such as age, gender, diagnosis, and destination at discharge. No sample size was calculated because all the patients available were included in this study.

Differences between samples were evaluated using Chi-Square test and we considered statistical significance with $p < 0.05$.

The study was evaluated and approved by the Ethics Research Committee from the IRBLLEIDA with number 2351/2020

Results

From March 1st, 2020 to May 31st of the same year, a total of 384 resuscitations were attended. April was the month with the lowest number of resuscitations (22.1% of the total). In the same period of 2019, a total of 659 resuscitations were performed in the resuscitation room. During the pandemic, 42% fewer resuscitations were performed. This difference is statistically significant ($p < 0.05$).

There was no difference between the 2 years regarding the gender of the patients.

In both periods there was a predominance of men (61%) compared to 38.2% of women. The average age of patients in 2019 was 64.5 years old and in 2020 65.1 years old.

Patients who are cared for are generally patients who are throughout their emergency evaluation need to be evaluated in the resuscitation room. In 2019, 47.8% of patients came after urgent pre-hospital care and less than 2% did so on their own. In 2020, 54.9% of patients came after the evaluation of the out-of-hospital Emergency Service, but the number of patients who came out on their own rose to 7.8%. We believe that many patients try to contain the situation at home, and when they evolved, they should finally be cared for in the resuscitation room.

Regarding the severity of the patients attended, there were no significant differences between both years, since the majority (70.2%) of patients had a test level according to the Andorran Triage System of 2 or 3 (Emergency or Urgency). Being more specific, patients with non-serious or non-urgent pathology (levels 4–5) were around 4%–5% in 2019. However, during the pandemic period this percentage was

0.8%, which shows that those people with minor pathologies avoided health centers were suspected COVID-19 infection were cared for.

In 2019, 83.2% of the cases attended suffered from cardiac pathology, followed by neurological pathology and traffic accidents. This data is also significant since in the same period of 2020 cardiac pathology fell to 8.3%. This significant decrease caused the alarm of the Cardiology Services of our country, since many patients suffered angina episodes at home with the serious consequences that this could entail. Neurological pathology was predominant in the pandemic period (57.3%).

After assessment in the resuscitation room, in 2019, 73.6% of the patients remained in the emergency department for observation, 25% were admitted to Critical Units and 5.25% were transferred to other centers. In 2020, 91.9% of patients remained under emergency observation, and only 0.8% of patients were transferred to other health centers. This was probably because the pathology that required tertiary hospital care was not attended and because the transfers between hospitals were reduced to avoid contagion. Hospital admissions, after ER evaluation, were delayed depending on COVID-19 results.

Discussion

The results found significant differences in terms of the total volume of patients treated in the resuscitation room and the pathology they suffered. Additionally, patients with banal pathology consulted the ER department not so often. Differences among patients regarding age, gender, or deaths after treatment in the resuscitation room were not found. These results are correlated with the number of positive COVID-19 cases in our health region in that period, when the highest cumulative incidence was achieved, close to 3000 cases.[8] So the highest incidence of COVID-19 cases was related to a decrease in the attention in the resuscitation room.

Cardiologic diseases have been displaced and probably many people have had complications at home. When in fact, the pathology treated in a resuscitation room is severe and non-dependent on COVID-19 infection. Changes in epidemiology and attention to Cardiovascular diseases have been described especially in out-of-hospital cardiac arrest (OHCA). However, no studies have described the characteristics of the resuscitation room. In 2020, the number of out-of-hospital cardiac arrest increased 58% in Italy,[9] and this increase was associated with the increase in cumulative incidence of COVID. Another study in France showed that the proportion of patients who had an OHCA and were admitted alive decreased from 22.8% to 12.8% ($p < 0.0001$) thoughout the pandemic period with a significant increase of OHCA at home and longer delays to intervention.

Besides changes in cardiovascular diseases, other pathologies have also suffered changes due to this pandemic. Another country with important changes in the attention of patients during the pandemic is Italy. In the study from Di Saverio et al.[10] they described how the number of patients with abdominal pain and colorectal diseases has also decreased over the first wave of the pandemic. And in some

cases, common acute abdominal diseases can be managed in conservative way.[11] Moreover, colorectal surgery has been affected due the prioritization of health assistance and resources to SARS-CoV2 infected patients.[12] In fact, there have been changes in the surgical approach of urgent patients thanks/(due ???) to Covid. Starting with the importance of a correct and prompt assessment with the use of accurate diagnostic tools,[13] to the greater use of open and less laparoscopic surgery.[14] These changes could be established after the worst months of pandemia.[15]

Changes in patients' attention during lockdown periods due to the pandemic, has also affected traumatology patients.[16]

Finally, it is important to analyze the use of Personal Protective Equipment (PPE) while taking care of patients in the resuscitation room. The use of that protection is useful against the COVID infection.[17] However, it has been described as an impediment to develop some surgical skills and it also increases professional fatigue.[18]

The main limitation of our study is that there is little evidence to compare our results with at the moment.

We wish to share these striking results with the medical community in Europe and United States to throw light on these facts and to find out if the same situation has happened elsewhere. This will also allow us to analyze if the quarantine has avoided/prevented certain patients to/from decompensate from their chronic conditions in comparison to the previous year. We have yet to see in the upcoming months if the patients that should have decompensated will have a torpid course or not.

Conclusion

The COVID pandemic has reduced patients attended at resuscitation room, especially cardiovascular ones. However, these changes have also affected surgical and traumatic patients, and has changed the way we attend our patients.

Author contribution

All the authors have made important contribution to the manuscript and have participated in the data collection and analysis.

Ethics approval

Ethical approval for this study was obtained from *ETHICS RESEARCH COMMITTEE OF BIOMEDICAL RESEARCH INSTITUTE OF LLEIDA (2020/2350)*.

Informed consent

Informed consent was not sought for the present study because it was retrospective study and we have the exemption of consent by the Ethics Committee

Declaration of Conflicting Interests

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Data sharing

All the data needed is in the manuscript. Data will be made available under requested.

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